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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,196	09/11/2003	Jeremy N. Shapiro	SUN-P9696	5772

57913   7590   06/11/2007

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EXAMINER
FAROUL, FARAH

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
06/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/660,196	SHAPIRO ET AL.
	Examiner	**Art Unit**	
	Farah Faroul	2616	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>2</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 September 2003*.

2a)☐ This action is **FINAL**.   2b)☐ This action is non-final.

3)☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2-4,8,13,22,23 and 25* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *1,5-7,9-12,14-21 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 September 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   . Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. .   The following Office Action is based on Application No. 10/600,196, filed on

September 11, 2003, having claims 1-25 and figures 1-3.

2.   This application is in condition for allowance except for the following formal

matters:

Drawings

a)   The drawings are objected to because Figures 2 and 3 fail to show a descriptive

legend for the acronyms: GS, TS and MST. Corrected drawing sheets in compliance

with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of

the application. Any amended replacement drawing sheet should include all of the

figures appearing on the immediate prior version of the sheet, even if only one figure is

being amended. The figure or figure number of an amended drawing should not be

labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must

be removed from the replacement sheet, and where necessary, the remaining figures

must be renumbered and appropriate changes made to the brief description of the

several views of the drawings for consistency. Additional replacement sheets may be

necessary to show the renumbering of the remaining figures. Each drawing sheet

submitted after the filing date of an application must be labeled in the top margin as .

either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the

changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings

will not be held in abeyance.

Specification

b)   The abstract of the disclosure is objected to because of the following

informalities:

The acronym MCT in lines 8 and 10 needs to be replaced with "Multicast Tree

(MCT)" in all lines.

The acronym MST in line 9 needs to be replaced with Minimum Spanning Tree

(MST)".

Correction is required. See MPEP § 608.01(b).

c)   The lengthy specification has not been checked to the extent necessary to

determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the

specification.

Claim Objections

d)   Claims 1, 5-7, 9-12, 14-21, and 24 are objected to because of the following

informalities:

In claims 1, 5-6, 11-12, 14-15, 17-18, and 20-21, the phrase "configured to"

needs to be deleted to make the claims positive.

Claim 1 recites the limitation "the node" in line 16. There is insufficient antecedent basis for this limitation in the claim. Applicant needs to make it clear which node he/she is referring to since applicant has previously recited "the new node", "the current node" and the "final node" in the claim.

Claim 5 recites the limitation "the node" in line 16. There is insufficient antecedent basis for this limitation in the claim. Applicant needs to make it clear which node he/she is referring to since applicant has previously recited "the new node", "the current node" and the "final node" in the claim.

Claim 6 recites the limitation "the request" in line 7. There is insufficient antecedent basis for this limitation in the claim. The limitation needs to be replaced with "the first request".

Claim 6 recites the limitation "repeating (e) – (g)" in line 7. It is suggested that applicant restate the limitation as "repeating steps (e) to steps (g)" to make the claim clear.

Claim 6 recites the limitations "said (f1)" and "said (f2)" in lines 23-24 and 28. It is suggested that applicant restate the limitations as "step (f1)" and "step (f2)" to make the claim clear.

Claim 6 recites the limitation "the node" in line 30. There is insufficient antecedent basis for this limitation in the claim. Applicant needs to make it clear which node he/she is referring to since applicant has previously recited "the new node", "the current node" and the "final node" in the claim.

Claim 6 recites the limitation "repeating (e) – (h)" in line 26. It is suggested that applicant restate the limitation as "repeating steps (e) to steps (h)" to make the claim clear.

Claim 7 recites the limitation "after (d)" in line 1. It is suggested that applicant restate the limitation as "step (d)" to make the claim clear.

Claim 9 recites the limitation "said (f3)" in line 1. It is suggested that applicant restate the limitation as "step (f3)" to make the claim clear.

Claim 10 recites the limitation "said (f3)" in line 1. It is suggested that applicant restate the limitation as "step (f3)" to make the claim clear.

Claim 11 recites the limitation "the request" in line 8. There is insufficient antecedent basis for this limitation in the claim. The limitation needs to be replaced with "the first request".

Claim 11 recites the limitation "repeating (e) – (g)" in line 21. It is suggested that applicant restate the limitation as "repeating steps (e) to steps (g)" to make the claim clear.

Claim 11 recites the limitation "repeating (e) – (h)" in line 27. It is suggested that applicant restate the limitation as "repeating steps (e) to steps (h)" to make the claim clear.

Claim 11 recites the limitations "said (f1)" and "said (f2)" in lines 24 and 29. It is suggested that applicant restate the limitations as "step (f1)" and "step (f2)" to make the claim clear.

Claim 15 recites the limitation "returning to (a)" in lines 9 and 13. There is insufficient antecedent basis for this limitation in the claim. The limitation needs to be replaced with "returning to step (a)" to make the claim clear.

Claim 16 recites the limitation "said repeating" in lines 1-2. There is no antecedent basis for this limitation in the claim. It is suggested that applicant delete the limitation.

Claim 17 recites the limitation "returning to (a)" in lines 10 and 14. There is insufficient antecedent basis for this limitation in the claim. The limitation needs to be replaced with "returning to step (a)" to make the claim clear.

Claim 18 recites the limitation "the number" in line 15. There is insufficient antecedent basis for this limitation in the claim. The limitation should be changed to "the number of local ports".

Claim 19 recites the limitation "said (a)" in line 1. There is insufficient antecedent basis for this limitation in the claim. The limitation should be changed to "step (a)".

Claim 19 recites the limitation "the node" in line 2. There is insufficient antecedent basis for this limitation in the claim. Applicant needs to make it clear which node he/she is referring to since applicant has previously recited "the new node", "the current node" and the "final node" in the claim.

Claim 24 recites the limitation "returning to (a)" in lines 8 and 12. There is insufficient antecedent basis for this limitation in the claim. The limitation needs to be replaced with "returning to step (a)" to make the claim clear.

Appropriate correction is required.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Allowable Subject Matter

3.   Claims 1-25 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

For claims 1-4, the prior art fails to teach a combination of:

Examining the routing tree membership statuses of nodes that are linked to the current node by links included in the minimum spanning tree;

Until the examining is halted, selecting a peer node of the current node as the current node and repeating the examining;

Halting the examining when a final node is examined if: the final node is a Full member of the routing tree; or the final node is a SendOnly member of the routing tree and the specified group membership status of the new node is SendOnly.

For claim 5, the prior art fails to teach a combination of:

Examining the routing tree membership statuses of nodes that are linked to the current node by links included in the minimum spanning tree;

Until the examining is halted, selecting a peer node of the current node as the current node and repeating the examining;

Halting the examining when a final node is examined if: the final node is a Full member of the routing tree; or the final node is a SendOnly member of the routing tree and the specified group membership status of the new node is SendOnly.

For claims 6-10, the prior art fails to teach a combination of:

Selecting a peer node of the current node, wherein a TreeStatus of the selected peer has not been examined since the first request was received, wherein the TreeStatus indicates a membership status in the routing tree

Performing one or more of the following examinations: determining if the TreeStatus of the selected peer is Full, determining if the TreeStatus of the selected peer is SendOnly and the GroupStatus of the current node is SendOnly and determining if a network link coupling the current node to the selected peer is part of the selected minimum spanning tree

For claim 11, the prior art fails to teach a combination of:

Selecting a peer node of the current node, wherein a TreeStatus of the selected peer has not been examined since the first request was received, wherein the TreeStatus indicates a membership status in the routing tree

Performing one or more of the following examinations: determining if the TreeStatus of the selected peer is Full, determining if the TreeStatus of the selected peer is SendOnly and the GroupStatus of the current node is SendOnly and determining

if a network link coupling the current node to the selected peer is part of the selected

minimum spanning tree

For claims 12-13, the prior art fails to teach a combination of:

Selecting the new node as the current node until a final node having a routing

tree membership status greater than or equal to the specified group membership status

of the new node is identified, repeating:

Examining the routing tree membership statuses of peer nodes of the current

node; and

Selecting as current node a peer node of the current node that is coupled to the

current node by a link included in the minimum spanning tree

For claim 14, the prior art fails to teach a combination of:

Selecting the new node as the current node until a final node having a routing

tree membership status greater than or equal to the specified group membership status

of the new node is identified, repeating:

Examining the routing tree membership statuses of peer nodes of the current

node; and

Selecting as current node a peer node of the current node that is coupled to the

current node by a link included in the minimum spanning tree

For claims 15-16, the prior art fails to teach a combination of:

If the number of local ports that are on is equal to zero: for each peer node

having a local port to the current node on, turning off the peer node's local port to the

current node and adding the peer node to the queue and setting the routing tree

membership status of the current node to none

If the number of local ports that are on is equal to one: on a sole peer node

coupled to the one local port, turning off the sole peer node's local port to the current

node if the sole peer's local port to the current node is on; adding the sole peer node to

the queue

For claim 17, the prior art fails to teach a combination of:

If the number of local ports that are on is equal to zero: for each peer node

having a local port to the current node on, turning off the peer node's local port to the

current node and adding the peer node to the queue and setting the routing tree

membership status of the current node to none

If the number of local ports that are on is equal to one: on a sole peer node

coupled to the one local port, turning off the sole peer node's local port to the current

node if the sole peer's local port to the current node is on; adding the sole peer node to

the queue

For claims 18-19, the prior art fails to teach a combination of:

If the number is equal to zero: for each peer of the current node with a local port

to the current node turned on: setting the local port of the peer to off, adding the peer to

the queue to the queue, and setting a TreeStatus of the current node to None, wherein

the TreeStatus indicates a membership status in the routing tree

If the number is equal to one: on the one peer coupled to the one local port of the current node, setting the local port of the one peer to the current node to off, adding the one peer to the queue

If the GroupStatus of the current node is None and zero peers of the current node, setting the TreeStatus of the current node to None, otherwise, setting the TreeStatus of the current node to SendOnly.

For claim 20, the prior art fails to teach a combination of:

If the number is equal to zero: for each peer of the current node with a local port to the current node turned on: setting the local port of the peer to off, adding the peer to the queue to the queue, and setting a TreeStatus of the current node to None, wherein the TreeStatus indicates a membership status in the routing tree

If the number is equal to one: on the one peer coupled to the one local port of the current node, setting the local port of the one peer to the current node to off, adding the one peer to the queue

If the GroupStatus of the current node is None and zero peers of the current node, setting the TreeStatus of the current node to None, otherwise, setting the TreeStatus of the current node to SendOnly.

For claims 21-25, the prior art fails to teach a combination of:

A subnet manager configured to update network node's routing tables when the routing tree is modified in response to a change in membership of the multicast group

A subnet management coordinator configured to: make a non-member into a Full or SendOnly member of the multicast group, make a Full or SendOnly member into a

non-member of the multicast group and update the membership of the routing tree in

response to a change in the membership of the multicast group

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. DeRango et al. (US 2003/0142671 A1) and Chen et al. (US

5,946,316) are cited to show systems pertinent to applicant's invention.

DeRango discloses a reservation proxy function supporting filtering of multicast

traffic in packet-based communication systems. Chen discloses a dynamic distributed
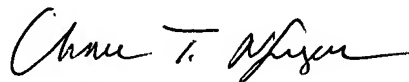
multicast routing protocol.

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Farah Faroul whose telephone number is 571-270-1421.

The examiner can normally be reached on Monday - Friday 6:30 AM - 4 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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